Chesterfield County's Falling Creek Wastewater Treatment Plant

Discover How Chesterfield County Returns Safe, Clean Water to the James River

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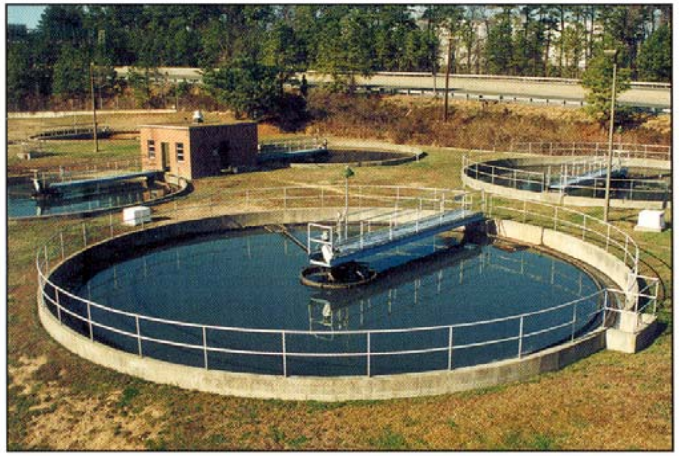
Serving as Chesterfield County's first wastewater treatment facility, Falling Creek Wastewater Treatment Plant uses state-of-the-art technology to remove pollutants from wastewater before it is returned to the James River. The treatment plant opened in the spring of 1965 with a capacity of three million gallons per day (mgd). Expansions occurred in 1972 and 1984 bringing the plant to its current capacity of 10.1 mgd.

The Process of Wastewater Treatment

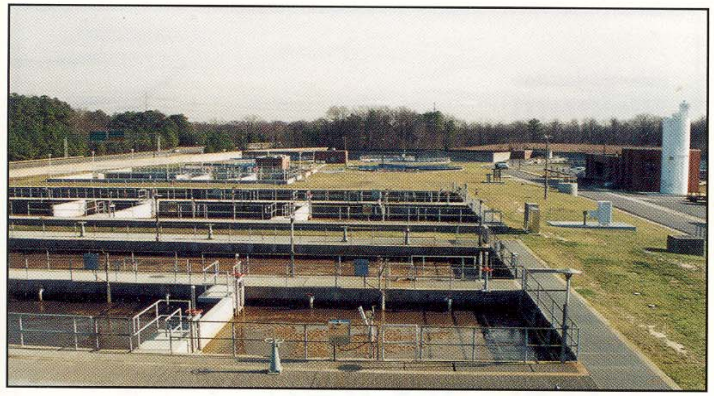
Pollutants in wastewater are produced by people and industries. The Falling Creek Wastewater Treatment Plant uses the following types of treatment to remove these pollutants:

- Primary Treatment,
- Secondary Treatment
- Tertiary Treatment
- Disinfection
- Biosolids Treatment



Primary Treatment Process

Primary treatment removes 45 -50 percent of pollutants by screening out large debris and removing grit and sand. Heavy organic material that cannot be removed by screening is removed in the primary clarifiers by settling. When the organic material settles, it becomes sludge. The sludge is removed from the clarifiers for further treatment.

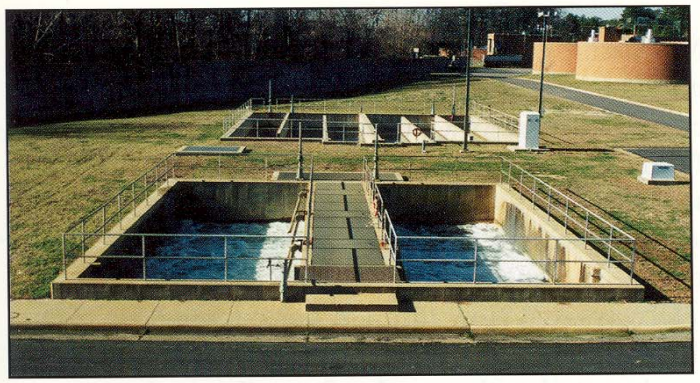


Secondary Treatment Process

Secondary treatment removes an additional 30-40 percent of pollutants by removing suspended organic material. Suspended organic materials and nutrients are removed in the bioreactor by a biological process referred to as "activated sludge." The activated sludge is removed by settling in the secondary clarifiers.

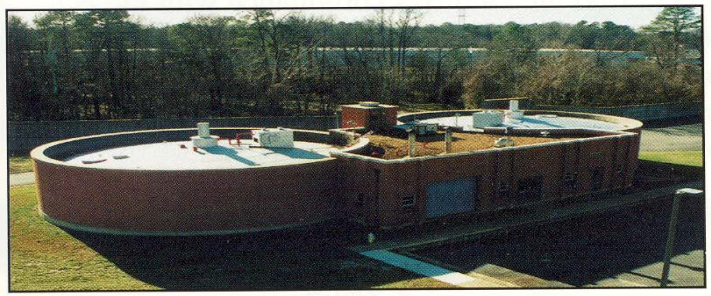
Tertiary Treatment Process

Tertiary treatment removes the remaining suspended and dissolved materials. Adding chemicals followed by flash mixing and flocculation creates particles heavy enough to settle in the AWT settling tanks. Sludge is removed from the bottom of the tanks for further treatment.



Disinfection

After the wastewater undergoes primary, secondary, and tertiary treatment, it is then disinfected with chlorine in the chlorine contact tank. The chlorine is removed in the post aeration tank prior to discharging the wastewater to the James River. It is necessary to remove the chlorine in order to protect the aquatic life in the James River.



Biosolids Treatment

The final step of wastewater treatment at the Falling Creek Plant is the biosolids treatment. Biosolids, or sludge, must be stabilized before it can be used as fertilizer on farmland. Sludge is thickened and digested to further reduce the volume. During the digestion process, organic material is decomposed and pathogens are destroyed to make the sludge safe for use as fertilizer. Following digestion the sludge is dewatered using belt filter presses.

Maintaining the water quality in the James River and the Chesapeake Bay is vital to the social and economic future of Chesterfield County and the state of Virginia. The Falling Creek Wastewater Treatment Plant plays a major role in achieving this goal. Returning safe, clean water to the James River is our primary responsibility so that we can protect the waterways that flow through our community.

The Falling Creek Wastewater Treatment Plant has been honored with awards of excellence from the Environmental Protection Agency, the Virginia Department of Environmental Quality, and the Virginia Water Environment Association. In 1994 and 1995, Falling Creek Wastewater Treatment Plant received gold and silver awards, respectively, from the Association of Metropolitan Sewerage Agencies which recognized the facility's compliance with the National Pollutant Discharge Elimination System permit. These awards illustrate Chesterfield's commitment to protecting the James River and the Chesapeake Bay.

CHESTERFIELD COUNTY UTILITIES

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